COST ACCOUNTING - VARIANCE ANALYSIS

When the actual cost differs from the standard cost, it is called variance. If the actual cost is less than the standard cost or the actual profit is higher than the standard profit, it is called **favorable variance**. On the contrary, if the actual cost is higher than the standard cost or profit is low, then it is called **adverse variance**.

Each element of cost and sales requires variance analysis. Variance is classified as follows:

- Direct Material Variance
- Direct Labor Variance
- Overhead Variance
- Sales Variance

Direct Material Variance

Material variances can be of the following categories:

- Material Cost Variance
- Material Price Variance
- Material Usage Variance
- Material Mix Variance
- Material Yield Variance

Material Cost Variance

Standard cost of materials for actual output – Actual cost of material used

Or

Material price variance + Material usage or quantity variance

Or

Material price variance + Material mix variance + Material yield variance

Material Price Variance

Actual usage $StandardQuantityPrice - ActualUnitPrice$

Actual Usage = Actual Quantity of material $inunits$ used

Standard Unit Price = Standard Price of material per unit

Actual Unit Price = Actual price of material per unit

Material Usage or Quantity Variance

Material usage or Quantity variance : Standard price per unit $StandardQuantity - ActualQuantity$

Material Mix Variance

Material mix variance arises due to the difference between the standard mixture of material and the actual mixture of Material mix.

Material Mix variance is calculated as a difference between the standard prices of standard mix and the standard price of actual mix.

If there is no difference between the standard and the actual weight of mix, then:

Standard unit cost $StandardQuantity - ActualQuantity$

Or

Standard Cost of Standard Mix – Standard cost of Actual Mix

Sometimes due to shortage of a particular type of material, standard is revised; then:

Standard unit cost $RevisedStandardQuantity - ActualQuantity$

Or

Standard cost of revised Standard Mix – Standard Cost of Actual mix

If the actual weight of mix differs from the standard weight of mix, then:

Standard cost of revised standard mix ×
Total weight of actual mix / mixTotal weight of revised standard mix

Material Yield Variance

When the standard and the actual mix do not differ, then

Yield Variance = Standard Rate × $ActualYield - StandardYield$

Standard Rate =
Standard cost of standard mix / Net standard output $i.e. Grossoutput - Standardloss$

Direct Labor Variance

Direct labor variances are categorized as follows:

- Labor Cost Variance
- Labor Rate of Pay Variance
- Total Labor Efficiency Variance
- Labor Efficiency Variance
- Labor Idle Time Variance
- Labor Mix Variance or Gang Composition Variance
- Labor Yield Variance or Labor Efficiency Sub Variance
- Substitution Variance

Labor Cost Variance

Standard Cost of Labor – Actual Cost of Labor

Labor Rate of pay Variance

Actual Time taken × $StandardRate - ActualRate$

Total Labor Efficiency Variance

Standard rate × $Standard time - Actual time$

Labor Efficiency Variance

Standard Rate $Standard time for actual output - Actual time worked$

Labor Idle Time Variance

Idle Time Variance = Abnormal Idle Time × Standard Rate

Total Labor Cost Variance = Labor rate of Pay variance + Total labor Efficiency Variance

Total Labor Efficiency Variance = Labor Efficiency Variance + Labor Idle Time Variance

Labor Mix Variance or Gang Composition Variance

If actual composition of labor is equal to standard:

LMV = Standard Cost of Standard Composition $for Actual time taken$ – Standard Cost of Actual Composition $for Actual time worked$

If standard composition of labor revised due to shortage of any specific type of labor but the total actual time is equal to the total standard time:

LMV = Standard Cost of Revised Standard Composition $for Actual Time Taken$ – Standard Cost of Actual Composition $for Actual Time Worked$

If actual and standard time of labor differs:

=
Total time of actual labor composition / Total time of standard labor composition
× Std.cost of std.composition − Std.cost of actual composition

In case the Standard is revised and there is a difference in the total Actual and the Standard time:

=
Total time of actual labor composition / Total time of revised std.labor composition
× Std.cost of $revised std. composition - actual composition$

Labor Yield Variance

Std. Labor Cost per unit × $Actual Yield In units - Std. Yield in units expected from Actual time worked on production$

Substitution Variance

$Actual hrs × Std. Rate of Std. Worker - Actual hrs × Std. Rate actual worker$